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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/580,630 | 05/24/2006 | Shinya Takagi | 034620-144 | 4372 |
| 46188 | 7590 | 12/21/2010 | EXAMINER | |
| Nixon Peabody LLP P.O. Box 60610 Palo Alto, CA 94306 | | | TORRES RUIZ, JOHALI ALEJANDRA | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|--------------------------------------|--|
| Office Action Summary | Application No. 10/580,630 | Applicant(s) TAKAGI ET AL. | |
| | Examiner JOHALI A. TORRES RUIZ | Art Unit 2858 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3 and 4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/3/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action has been issued in response to the amendment filed on October 1, 2010.

2. Claim 1-2 have been cancelled by applicant.

3. Claims 3-4 are pending.

4. Applicant's arguments have been carefully and respectfully considered.

Rejections have been maintained where arguments were not persuasive. Also, new rejections based on the amended claims have been set forth. Accordingly, claims 3-4 are rejected, and this action is made FINAL, as necessitated by amendment.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2858

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drori (U.S. Patent Number 6,501,249), Nguyen (U.S. Patent Number 5,402,055) and Rouillard et al. (U.S. Patent Number 5,952,815).

8. Claim 3: Drori teaches a DC power supply apparatus (108); a load device (106) which is connected to said DC power supply apparatus (108); a charging path which is connected to said DC power supply apparatus (108) in parallel with said load device (106), said charging path including a lithium ion battery (102) (Col.3, Lines 57-60 (Col. and a switch (110) that is installed in said charging path in series with said lithium ion battery (102) and is provided with such function that disconnects said lithium ion battery (102) from both of said DC power supply apparatus (108) and said load device (106) when the cell voltage of said lithium ion battery (102) shows overcharging or over-discharging of said lithium ion battery (102) (Col.4, Lines 46-49) or connects said lithium ion battery (102) to both of said DC power supply apparatus (108) and said load device (106) in a normal state to receive a charging current from said power supply apparatus (108) while said DC power supply apparatus (108) supplies a current to said load devices (106) (Col.11, Lines 53-64); and a control circuit (104) connected to said switch (110) that monitors the voltage value of said charging path, and controls said switch (110) when said voltage of said charging path exceeds a specified voltage value during charging (Col.4, Lines 46-49). Drori teaches the battery (102) can be designed on a variety of materials including NiCd, NiH and Li-ion (Col.3, Lines 57-60) and converting

Art Unit: 2858

AC current from an electrical socket into appropriate DC current to charge the battery (102) (Col.11, Lines 56-59).

Drori does not explicitly teach a charging current limiting circuit that is connected in series with said lithium ion battery that supplies a charging current of an arbitrary value independent of load fluctuations in said charging path; connecting the lithium ion battery via said charging current limiting circuit so that said charging current limiting circuit supplies said charging current to said lithium ion battery; a control circuit performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit.

Nguyen teaches a charging current limiting circuit (28) that is connected in series with a battery (24) that supplies a charging current of an arbitrary value independent of load fluctuations in a charging path (Col.5, Lines 37-49); a control circuit connected to said charging current limiting circuit (28) that performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit and connecting the battery (24) via said charging current limiting circuit so that said charging current limiting circuit (28) supplies said charging current to said battery (24) (Col.2, Lines 63-68) (Col.3, Lines 1-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Nguyen in the device of Drori to have limited the output of the AC adapter to a nominal voltage and limited the power consumption to an acceptable level (Col.3, Lines 6-9).

Drori and Nguyen do not explicitly teach a plurality of said lithium ion batteries are connected in series, and said power supply system is further provided with a plurality of voltage regulation circuits that are connected in parallel with respective lithium ion battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current when said full charge voltage exceeds a full charge voltage set in each plurality of said voltage regulation circuits; a control circuit that sets a uniform full charge voltage as said full charge reference voltage in all of said plurality voltage regulation circuits.

Rouillard teaches a plurality of lithium ion batteries connected in series (Cell1-CellN) (Col.23, Lines 2-7), and a power supply system is further provided with a plurality of voltage regulation circuits (202, 204 and 206) that is connected are parallel with each lithium ion battery (cell1-cellN) of said plurality of series-connected lithium ion batteries (Col.10, Lines 9-12), it teaches a suitable voltage regulation circuit (220) can be formed to detect a full-charge voltage in each of said lithium ion batteries and bypass a charging current when said full charge voltage exceeds a full charge voltage set in each plurality of said voltage regulation circuits (Col.11, Lines 13-17 and 31-58); and a control circuit (229) performs a full-charge reference voltage setting in each plurality of voltage regulation circuits (Col.10, Lines 16-20). It would have been obvious to one of ordinary skill in the art to have substituted the voltage regulation circuits (202, 204 and 206) (Fig.14) with the voltage regulation circuit (220) (Fig.15) for the predictable result of current equalization.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Rouillard in the combination of Drori and Nguyen to have reduced cell voltage (Col.11, Lines 62-64) and have provided overcharge protection (Col.11, Lines 13-17).

9. Claim 4: Drori, Nguyen and Rouillard teach the limitations of claim 3 as discussed above. Rouillard teaches the voltage regulation circuit (220) includes a differential amplifier (222) supplied with said full-charge reference voltage (221) from said control circuit (229) (Col.10, Lines 16-20) (Col.11, Lines 13,17) and a charge voltage (V1) from said respective lithium ion battery (Col.11, Lines 7-11); and a charging current bypass circuit (230, 228, 232) connected in parallel with said respective lithium ion battery (Fig.15) and activated by an output of said differential amplifier (222) so as to bypass said charging current of said respective lithium ion battery when said full-charge voltage exceeds a full-charge reference voltage (Col.11, Lines 31-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Rouillard in the combination of Drori and Nguyen to have reduced cell voltage (Col.11, Lines 62-64) and have provided overcharge protection (Col.11, Lines 13-17).

Response to Arguments

10. Applicant's arguments with respect to claims 3-4 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHALI A. TORRES RUIZ whose telephone number is (571)270-1262. The examiner can normally be reached on M- F 10:00am-6:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2858

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. T./
Examiner, Art Unit 2858

/Edward Tso/
Primary Examiner, Art Unit 2858